metal is laser vaporized in an oven at about 1200°C. Single-wall nanotubes were reported to be produced in yields of more than 70%.

On page 5 of the specification, second full paragraph, lines 13-17:

Each of the techniques described above employs solid carbon as the carbon feedstock. These techniques are inherently disadvantageous. Specifically, solid carbon vaporization via electric arc or laser apparatus is costly and difficult to operate on the commercial or industrial scale.

IN THE CLAIMS

Please cancel claim 23 and 54-55, without prejudice.

1. A process for producing hollow, single-walled carbon nanotubes by catalytic decomposition of one or more gaseous carbon compounds comprising the steps of:

(1) forming a gas phase mixture of

(a) a carbon feed stock gas comprising one or more gaseous carbon compounds, each said compound having one to six carbon atoms and only H, O, N, S or Cl as hetero atoms, optionally admixed with hydrogen, and

(b) a gas phase metal containing compound which is unstable under reaction conditions for said decomposition, and which forms a metal containing catalyst which acts as a decomposition catalyst under reaction conditions;

(2) conducting said decomposition reaction under decomposition reaction conditions and thereby producing said nanotubes.

2. The method defined in claim 1, wherein 50% or more of said carbon feedstock gas is carbon monoxide.

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3. The method defined in claim 1, wherein said carbon feedstock gas consists essentially of carbon monoxide.

4. The method defined in claim 1, wherein said decomposition reaction occurs at temperatures between approximately 400°C and approximately 1300°C.

5. The method defined in claim 1, wherein said decomposition reaction occurs at temperatures between approximately 700°C and approximately 1100°C.

6. The method defined in claim 1, wherein said decomposition reaction occurs at a pressure range of approaching 0 p.s.i.g. through approximately 100 p.s.i.g.

7. The method defined in claim 1, wherein said gas phase metal containing compound is produced by vaporizing a liquid or solid phase metal containing compound.

8. The method defined in claim 7, wherein said metal containing compound is vaporized into a flowing stream of carbon feedstock, wherein the temperature of said flowing stream is between approximately 400°C and approximately 1300°C and wherein said flowing stream is at a pressure range of approaching 0 p.s.i.g. through approximately 100 p.s.i.g.

9. The method defined in claim 1, wherein said gas phase metal containing compound is mixed with said feedstock by direct injection.

10. The method defined in claim 1, wherein said gas phase metal containing compound is in the form of an aerosol.

11. The method defined in claim 1, wherein said gas phase metal containing compound is $Mo(CO)_6$.

12. The method defined in claim 1, wherein said gas phase metal containing compound is $Co_2(CO)_8$.

13. The method defined in claim 1, wherein said gas phase metal containing compound is a volatile iron compound.

14. (Amended) The method of claim 13, wherein said volatile iron compound is ferrocene.

15. The method defined in claim 1, wherein said gas phase metal containing compound is a volatile manganese compound.

16. The method of claim 15, wherein said volatile manganese compound is methylcyclopentadienyl manganese tricarbonyl.

17. The method defined in claim 1, wherein said gas phase metal containing compound is a volatile cobalt compound.

18. The method of claim 17, wherein said volatile cobalt compound is cyclopentadienyl cobalt dicarbonyl.

19. The method defined in claim 1, wherein said gas phase metal containing compound is a volatile nickel compound.

20. The method of claim 19, wherein said volatile nickel compound is nickel dimethylglyoxime.

21. The method defined in claim 1, wherein said gas phase metal containing compound is produced by subliming a solid phase metal containing compound.

22. The method defined in claim 1, wherein said gas phase metal containing compound is produced by vaporizing a liquid phase metal containing compound.

24. A method for producing hollow, single-walled carbon nanotubes having diameters less than about 3 nanometers by catalytic decomposition of one or more gaseous carbon compounds comprising the steps of:

(1) forming a gas phase mixture of:

(a) a carbon feed stock gas comprising one or more gaseous carbon compounds, each said compound having one to six carbon atoms and only H, O, N, S or Cl as hetero atoms, optionally admixed with hydrogen, a diluent or mixtures thereof; and

(b) a gas phase metal containing compound which is unstable under reaction conditions for said catalytic decomposition, and which forms metal containing catalysts which act as decomposition catalysts under reaction conditions;

(2) and conducting said catalytic decomposition reaction under decomposition reaction conditions and thereby producing said hollow, single-walled carbon nanotubes having diameters less than about 3 nanometers.

25. A method for producing hollow, single-walled carbon nanotubes having diameters less than about 3 nanometers comprising the steps of:

(1) forming a gas phase mixture of:

(a) a carbon feed stock gas comprising one or more gaseous carbon compounds, each said compound having one to six carbon atoms and only H, O, N, S or Cl as hetero atoms, optionally admixed with hydrogen, a diluent or mixtures thereof; and

(b) a gas phase metal containing compound which forms metal containing catalysts which act as decomposition catalysts under reaction conditions; and

(2) conducting a reaction under said reaction conditions and thereby producing said hollow, single-walled carbon nanotubes having diameters less than about 3 nanometers.

26. The method as defined in claim 24, wherein said carbon feedstock gas comprises carbon monoxide.

27. The method as defined in claim 24, wherein said carbon feedstock gas consists essentially of carbon monoxide.

28. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 400°C and approximately 1300°C.

29. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 400°C and approximately 1100°C.

30. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 400°C and approximately 900°C.

31. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 700°C and approximately 1300°C.

32. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 700°C and approximately 1100°C.

33. The method as defined in claim 24, wherein said decomposition reaction occurs at temperatures between approximately 700°C and approximately 900°C.

34. The method as defined in claim 24, wherein said decomposition reaction occurs at a pressure range of approaching 0 p.s.i.g. through approximately 100 p.s.i.g.

35. The method as defined in claim 24, wherein said gas phase metal containing compound is mixed with said feedstock by direct injection.

36. The method as defined in claim 24, wherein said gas phase metal containing compound is in the form of an aerosol.

37. The method as defined in claim 24, wherein said gas phase metal containing compound is a metal carbonyl.

38. The method as defined in claim 24, wherein said gas phase metal containing compound comprises iron carbonyl.

39. The method as defined in claim 24, wherein said gas phase metal containing compound comprises molybdenum carbonyl.

40. The method as defined in claim 24, wherein said gas phase metal containing compound comprises cobalt carbonyl.

41. The method as defined in claim 24, wherein said gas phase metal containing compound is $Mo(CO)_6$.

42. The method as defined in claim 24, wherein said gas phase metal containing compound is $Co_2(CO)_8$.

43. The method as defined in claim 24, wherein said gas phase metal containing compound is a volatile iron compound.

44. The method as defined in claim 43, wherein said volatile iron compound is ferrocene.

45. The method as defined in claim 24, wherein said gas phase metal containing compound is a volatile manganese compound.

46. The method as defined in claim 45, wherein said volatile manganese compound is methylcyclopentadienyl manganese tricarbonyl.

47. The method as defined in claim 24, wherein said gas phase metal containing compound is a volatile cobalt compound.

48. The method as defined in claim 47, wherein said volatile cobalt compound is cyclopentadienyl cobalt dicarbonyl.

49. The method as defined in claim 24, wherein said gas phase mixture consists essentially of said carbon feed stock gas and said gas phase metal containing compound, optionally admixed with hydrogen, a diluent or mixtures thereof.

50. The method as defined in claim 24, wherein said carbon nanotubes have diameters ranging from about 1 to about 3 nanometers.